

EXHIBIT 3

[REDACTED]

is proven by virtue of the fact that one could change the saturation or hue of blue without affecting the other colors as confirmed from my testing of the ASUS display. Simply put there is no other way for the Accused Devices to operate other than identifying the input image pixels and their associated input data including color values, to be changed.¹⁵

63. Second, the Accused Devices must use arithmetic and logical operations to identify those input image pixels that qualify for change. I am aware that all of the Accused Devices have a microprocessor necessary to achieve functionality. [REDACTED]

[REDACTED] And, because microprocessors necessarily perform calculations and functions *using* arithmetic and logical operations—math and logic, basic arithmetic and compare functions—the Accused Devices therefore satisfy this claim limitation.

64. Further, each of the Accused Devices also use software instructions executing on the processor chip to recognize the user's selection of color adjustments wherein pursuant to such selection, the software instructions generally transform the measured color space (*i.e.* the color points as measured on the input video stream) to the desired color space (*i.e.* the output according to the custom color mode). It is well understood that a processor executing such software instructions necessarily comprises one or more arithmetic and logical units (ALUs) and a control unit (CU). An ALU is responsible for arithmetic operations (*e.g.* addition, subtraction, *etc.*) and for logical operations (*e.g.* such as and, or, *etc.*) A. Processors routinely use these arithmetic and logical operations to transform data stored in registers. Therefore, it is my opinion that in converting the color

¹⁵ To the extent that the ASUS Accused Products involve projector technology, my opinions do not change. Indeed, whether the video is rendered by a video screen or projected by a projector does not change my opinions, because a projectors also operate with pixels and pixel values despite the fact that such devices ultimately project an image.

¹⁶ I have provided a “tear down” to this report shown as Exhibit 3 and incorporated by reference.

[REDACTED]

space from measured color space to desired color space - and selectively adjusting the colors represented by input image pixels , the processor in each respective Accused Device necessarily use arithmetic and logical operations for identifying the image pixels in the input image , recognizing the color point of the pixel in accordance with the measured color space and for transforming the color point of the pixel to one in accordance with the desired color space .

65. Importantly, the claim does not require a specific method of achieving changes to hue or saturation of an individual color in digital video, just that the identification of the pixels to be changed. Further it is not necessary for me to analyse the source code in the Accused Device because based on my knowledge, training and experience in the field, I am of the opinion that it is certainly beyond a preponderance that display processors operate by using arithmetic and logical operations by their nature. Thus, in my opinion, this claim limitation is satisfied. Additionally, if the Accused Devices do not literally infringe this recited step, then they infringe under the doctrine of equivalents. The Accused Device is capable of achieving substantially similar results using insubstantially different operations. For example, the Accused Devices are capable and do achieve identifying the pixel values with the individual color to be changed and applying the change to either hue or saturation. Those values do change accordingly, as confirmed and explained by my testing of the Accused Products. Therefore, even if the Accused Devices, for example, uses a matrix or LUT transform, it still achieves substantially similar results with insubstantially different operations.¹⁷

¹⁷ To the extent additional discovery (e.g. ASUS depositions, source code, *etc.*) is subsequently produced, discovered or made available, I reserve the right to supplement this report and my opinions contained herein.

H. Claim 15

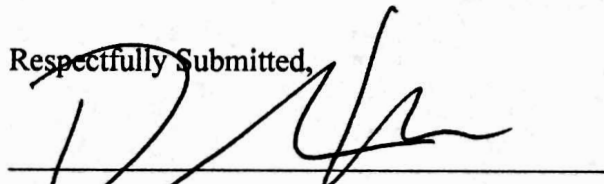
- 1. The method of claim 1, whereby in step (d), for independently controlling the saturation of said selected individual color in the real time digital video image, said independent color saturation control function is a function of said input image pixel values of said plurality of said input image pixels and of said corresponding selected independent color saturation control delta value.**

91. The Accused Device allows the user to adjust an individual color in the real time video as a function of the saturation of the input image pixel values. This adjustment is actuated using an independent color saturation control value through an On-Screen-Display. It is my opinion that the Accused Device employs this claim.

I swear under penalty of perjury that the foregoing is true and correct.

Dated: September 2, 2020

Respectfully Submitted,


A horizontal line is drawn across the page, and the signature is written over it.

Alfred D. Ducharme